MAIN STREET AT SANTA ROSA CREEK

BRIDGE REPLACEMENT PROJECT

DIVERSION AND DEWATERING PLAN

JANUARY 2013

The County of San Luis Obispo Public Works Department's Main Street at Santa Rosa Creek Bridge Replacement Project ("Project") will require diversion and dewatering of Santa Rosa Creek before and during construction activities. This Diversion and Dewatering Plan ("Plan") is conceptual and shall be used by the regulatory agencies for permitting. The construction contractor shall implement a diversion and dewatering plan that meets the intent of this Plan.

Design

The pipe diversion design is sized to accommodate flows as high as 37 cfs. This design is based on flow data collected by San Luis Obispo County for a sixteen-year period between 1988 and 2004 from June 1 to October 31.

Maximum flow during this period was 59 cfs in 1988. Once in 1998 the flow was 37 cfs and in 1992 it was 35 cfs. The 1988 and 1998 flows were decreasing flows from rainfall in earlier months and the 1992 flow was from a rainfall during the last two days of October.

During the 1988 to 2004 period, the flows in the creek were above the 37 cfs design flow only 1.3% of the time. Each time the flows were greater, the flows were generated from rainfall from earlier months and therefore a decreasing flow was experinced into the construction months.

Installation to Diversion System

The Project site will be isolated by use of diversion dams both up and downstream of the area under construction. Diversion dams will be placed at right angles to the creek such that two are upstream and one is downstream, thus ensuring an isolated Project site. The diversion dams will be installed to ensure the creek will not overtop or circumvent the dams. The diversion dams will be constructed with a combination of gravel bags and impermeable plastic sheathing, as shown on the Stream Diversion Plan (see attached plan sheet DP-1) and as described below. Should the diversion dams fails, the County will take immediate action to prevent adverse impacts to water quality and notify the Central Coast Water Quality Control Board ("Water Board") as soon as practicable and within 24 hours.

The creek will be diverted through the Project site by use of three 24-inch diameter plastic pipes to maintain pre-construction streamflow downstream of the Project site. The diversion system shall be installed with minimal disturbance of the creek bed. All joints between the edges of impermeable plastic sheeting will be lapped and joined with

commercial quality waterproof tape with minimum 4-inch lapping at the edges. All joints between the plastic sheet and the plastic pipe culvert will be sealed with commercial quality waterproof tape.

The diversion culverts will be constructed in their entirety prior to constructing the diversion dam. Once culvert construction is complete, the primary upstream diversion dam will be constructed and streamflow will be directed to the diversion culverts. Then the secondary and downstream diversion dams will be constructed, thereby isolating the Project site.

The invert elevation of the culverts will be installed on the natural streambed grade at both ends and matching the slope of the culverts to the streambed slope. A gravel bag apron at the inlet end of the diversion culvert will be installed to minimize the build up of sediment and reduce erosion where the water enters the culverts. A shallow trench will be necessary so that the top surface of the gravel bag apron is level with the natural stream bed grade. Impervious plastic sheeting will be placed on the streambed and stream banks prior to the placement of the pipe culverts and upstream diversion dam. The impervious plastic sheeting will then be wrapped over the diversion dam to help prevent stream water from soaking through the gravel bags.

The County does not anticipate sediment build up at the inlet end of the diversion, but in the event build up does occur, the County will remove it with hand tools prior to removing the diversion.

In an effort to match the flow rate of Santa Rosa Creek the diversion culverts will be blocked with gravel bags as the flow rate in the creek diminishes through the dry months. This practice helps to decrease the likelihood that aquatic species will become stranded up or downstream of the diversion and helps prevent secondary erosion. In the event erosion occurs at the outlet of the diversion culvert, the County will confer with the Water Board to devise acceptable corrective actions.

Upon completion of construction activities requiring the diversion, any barriers to flow shall be removed in a manner that would allow flow to resume with the least disturbance to the substrate. Except in the areas of the proposed rock slope protection, all temporarily disturbed areas within jurisdictional waters should be restored to pre-project conditions.

When work to remove the diversion begins, the downstream dam will be removed first, allowing water to flood back into the original channel. Then the diversion culverts (one section at a time) will be removed, thereby allowing water to flow out of the culvert prior to removal from the channel. Lastly, the upstream dams will be removed, including all sandbags and plastic sheathing.

Dewatering

In addition to the diversion system described above, additional dewatering activites may be needed to ensure an isolated project area by removing standing stormwater and non-stormwater from between the diversion dams. Non-stormwaters include, but are not limited to, groundwater and water from the diversion that must be removed from a work

area. A sump pump(s) may be needed to remove standing stormwater and non-stormwater from between diversion dams.

Site conditions will dictate the dewatering design. A dewatering plan will be submitted as part of the SWPPP detailing the location of dewatering activities, equipment, and discharge point(s). Sediment control and other appropriate BMPs (e.g. outlet protection/energy dissipation, sediment trap, weir tank, gravity bag filter, sand media particulate filter, pressurized bag filter, silt catch basins, silt fencing, certified weed free straw bale dikes, or other siltation barriers) will be employed when water is discharged to prevent erosion at each discharge point. Dewatering discharge points will be located such that the discharge will not result in erosion.

Sump pump(s) will generally be located at a low point between the diversion dams to pump water to an upland bank location. All pump intakes will be screened with 0.2-inch wire mesh that is securely fastened to prevent aquatic species from entering the pump system. All pumped water will be either settled or filtered prior to discharge back into Santa Rosa Creek. The pump outlet will be relocated as needed to limit bank saturation and provide for proper sediment filtration prior to entering Santa Rosa Creek.

Upon completion of dewatering activities, The County will remove all equipment and infrastructure associated with the dewatering in a manner that will not cause adverse impacts to water quality.

Monitoring

Prior to implementation of the Plan the County will conduct baseline sampling to determine natural turbidity and pH levels in Santa Rosa Creek at the Project site.

The County will conduct daily monitoring and record keeping documentation of visible water characteristics (e.g., visible turbidity, sedimentation, and/or erosion) during dewatering/diversion implementation.

The County will conduct daily water quality sampling and record keeping documentation of the Santa Rosa Creek downstream of the Project site for pH and turbidity during active dewatering. Where the natural turbidity of Santa Rosa Creek is between 0 and 50 Nephelometric Turbidity Units (NTU), increases may not exceed 20 percent. Where the natural turbidity is between 50 and 100 NTU, increases may not exceed 10 NTU. Where the natural turbidity is greater than 100 NTU, increases may not exceed 10 percent. The pH levels of Santa Rosa Creek may not drop below 6 or rise above 9. If sampling results indicate noncompliance with this Plan, then follow-up sampling of Santa Rosa Creek upstream of the Project site will also be performed.

In the event the County discovers any adverse conditions that could potentially negatively impact water quality or if the turbidity and pH exceed the criteria described above, the County will take immediate corrective actions to prevent adverse impacts to Santa Rosa Creek and notify the Water Board by telephone/fax as soon as practicable, but no later than within 24 hours.

The County will record the results of each daily visual monitoring, sampling of Santa Rosa Creek, and any corrective actions taken.

Reporting

Throughout the period of active dewatering/diversion, the County will submit to the Water Board weekly monitoring and maintenance reports. The County will submit the first report on the first Wednesday after the dewatering/diversion activities commence. The County will submit the last report the Wednesday after the dewatering/diversion activities are complete.

The weekly reports will include:

1. Time, date and location of dewatering/diversion and location of discharge(s).
2. Summary of daily visual monitoring and water sampling
3. Estimated volume of dewatering/diversion discharges;
4. Photographs; and
5. Maps.